

# MANUAL OF METHODS IN FISHERIES BIOLOGY

*compiled by*

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**Fascicule 1**

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## FOREWORD

Several years ago, at one of the earliest sessions of the Indo-Pacific Fisheries Council, attention was drawn to the need for textbooks covering each of the aspects of fisheries science. Plans were then made for a series of manuals for the use of fishery workers in the Indo-Pacific region. Progress in preparing these was for several reasons very slow. In the meantime, the Food and Agriculture Organization of the United Nations had found through its Expanded Program of Technical Assistance, its experience in conducting regional training centers and, more recently, as Executing Agency of fisheries projects under the United Nations Special Fund, that the need for such manuals extended beyond the Indo-Pacific region. The Organization therefore undertook to sponsor the production of such a series for world-wide use. The present volume is the first of the series.

There can be no doubt about the need for manuals such as those planned. Fisheries science is new, its academic institutions few, and its practitioners far from numerous. It is natural therefore that few efforts should have been made to crystallize, in textbook language, ideas and concepts that are even now still taking shape. Nor does FAO wish to be premature in this matter, and these manuals will therefore not be textbooks in the usual sense, but rather practical guides describing techniques and plans and presenting such ideas and views on this science as at present have general currency. In doing this we have borne in mind that very frequently the original scientific publications in which methods are described may not all be available to the technicians and research workers for whom these manuals are intended, especially in developing countries: and also that although many of the methods for particular purposes – especially in oceanography – are more fully described in a number of existing manuals, these also are not always accessible, nor published in a language readily understood by the users.

An unusual feature of this and other manuals in the FAO series will be the combination of descriptions of methods for both inland and marine investigations: this, we believe, will prove especially useful in developing countries, where the very few trained people may be called upon from time to time to make *ad hoc* studies outside their own special competence.



The production of these manuals is a co-operative enterprise in which authors, consultants and users are joined together in deciding which concepts, methods and terms have survived sufficient testing to merit inclusion. Because fisheries science is growing rapidly, the manuals are issued in separate fascicules to allow for ready revision of individual sections.

The assistance of all fishery workers in the task of revision is sought, and comments and suggestions from readers would be welcomed.

Contributions to the first draft of a Manual on Field Methods were made over a period of years by several members of FAO Fisheries Division, Biology Branch, namely: W.C. Beckman, W.A. Dill, S.J. Holt, G.L. Kesteven (General Editor of this series) and T. Laevastu. This was issued in two mimeographed versions in January 1958 and September 1958, amendments to which were suggested by many specialists consulted. A printed provisional edition was distributed for comment early in 1960, to representatives of the Indo-Pacific Fisheries Council, to fisheries scientists in member countries of the International Commission for the Northwest Atlantic Fisheries and the International Council for the Exploration of the Sea, and to fisheries laboratories in most of the member countries of FAO. All the comments received were taken into account in revising the provisional edition; the correspondents who made detailed contributions or suggestions are too numerous for individual mention here, but their assistance was much appreciated.

The present volume also incorporates parts of a projected manual of laboratory methods of which a mimeographed version had been issued in 1958. This version of the combined manual was compiled by T. Laevastu who was at the time a member of the staff of FAO Fisheries Division.

Compilation and publication in three languages of a technical manual, such as this, is necessarily a lengthy process. Since work on it was begun the Inter-Governmental Oceanographic Commission under Unesco, and the Scientific Committee for Oceanic Research of the International Council of Scientific Unions have both come into existence, and the Unesco Office of Oceanography, the International Council for the Exploration of the Sea and other international bodies have, through specialized working groups and by other means, begun studies to review many oceanographic methods and to propose standards for them. It may well be, therefore, that several of the methods originally proposed for inclusion in this manual will soon be superseded: this may apply especially to parts of Section 2 and 3. Nevertheless, at the time of going to press the methods described are believed to be useful ones, even if some are not entirely satisfactory.

Work is in progress, too, in fields covered by other sections: for example, the nomenclature and classification of fishing gear dealt with in Section 5. As new or amended methods are described elsewhere, outlines of them will be



incorporated in revised fascicules of the relevant sections. Section 4, research on fish stocks, deals only with simple field observations. Other manuals in this series will cover in detail the collection and analysis of fish population data, and the statistical problems of sampling and experimental design, as well as the conduct of special kinds of field experiments, such as studies of fishing gear selectivity.

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